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Language Sample Analysis for Spanish Speakers

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Language Sample Analysis for Spanish Speakers

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Dedication

This thesis is dedicated to my mom, who paved the way for my pursuit of higher education. Her life's work has immeasurably impacted my career choice and research interests.

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Abstract

Language Sample Analysis for Spanish Speakers

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The purpose of this project was to develop a Spanish language sample analysis (LSA) scoring procedure for English-Spanish bilinguals used to guide clinicians in developing language goals and monitoring progress on those goals. A Spanish LSA procedure was created and was tested on 20 typically developing and 16 language impaired English-Spanish bilinguals. Each utterance of each language sample was analyzed for correct and attempted use of the 20 grammatical forms selected for the LSA procedure. Based on the results, a preliminary profile of impairment was established. It showed that Relative Clauses, Infinitive Clauses, Present Subjunctive, Third Person Plural Present and Preterit Indicative, Irregular Preterit Indicative, Indirect and Direct Object Clitics, Imperfect, and Plural Nouns were the most problematic forms for English-Spanish bilinguals with LI. Clinical implications of these findings are discussed.

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Chapter 1: Introduction

Language projections for the year 2020 using US Census Bureau data show that the population of Spanish-speakers is growing, and that Spanish will continue to be the most prevalent home language other than English in the US (Shin & Ortman, 2011). As the proportion of English-Spanish bilinguals increases in public schools, so too will the proportion of English-Spanish bilinguals on the caseloads of speech-language pathologists (SLPs). Unfortunately, many SLPs feel ill-equipped to deal with this population. A survey of SLPs about their beliefs about the language assessment of bilingual/bicultural individuals revealed that respondents indicated a lack of personal skills as well as a lack of general knowledge in our field as contributing to low efficacy in working with bilingual populations (Kritikos, 2003).

Our field needs a better understanding of profiles of impairment and trajectories of language development in English-Spanish bilinguals with language impairment (LI). The first step in this process is developing language-specific assessment tools for bilinguals. Difficulty with morphosyntax is a common feature among all children with LI (Simón-Cerejido & Gutiérrez-Clellen, 2007; Bedore & Leonard, 2001; Restrepo & Kruth, 2000), but the specific forms that are clinical markers across languages vary due to inherent differences between languages. For example, research suggests that Spanish-speaking children with LI produce more errors in the noun system than do English-speaking children with LI, who produce more errors in the verb system (Bedore & Leonard, 2005; Gavin et al., 1993). These differences highlight the need for language-specific measures.

Recently, several standardized language measures with good classification accuracy have been published for the assessment of English-Spanish bilinguals, like the Bilingual English-Spanish Assessment (BESA; Peña, Gutiérrez-Clellen, Iglesias, Goldstein, & Bedore, 2013), the Preschool Language Scales, Fifth Edition Spanish (PLS-5 Spanish; Zimmerman, Steiner, & Pond, 2013), and the Clinical Evaluation of Language Fundamentals- Fourth Edition, Spanish (CELF-4 Spanish; Wiig, Semel, & Secord, 2006). Importantly, the BESA, PLS-5 Spanish, and CELF-4 Spanish have been normed on English-Spanish bilinguals in the US.

Omnibus tests such as the BESA focus on those items that most effectively discriminate typically developing (TD) from LI children. For example, in spite of the fact that LI children are less accurate than their TD peers on Spanish present and preterit verb inflections (Bedore & Leonard, 2005), finite verb conjugation is not included on the BESA because LI children are highly accurate with this form. In other words, though finite verb conjugation may be a useful therapy target, it was not included on the BESA because it offers poor discrimination. This example demonstrates the limitations of standardized tests; though they accomplish the essential task of diagnosing LI and qualifying children for therapy, they are not effective for progress monitoring or goal creation. Language sample analysis (LSA) offers a way to do both of these things.

LSA is considered one of the best measures for evaluating language production, as it can be used to pinpoint specific areas of weakness, to determine treatment goals, and to monitor progress (Stockman, 1995). Unfortunately, only a handful of LSA procedures in Spanish are published or are currently under development. One of the most commonly used

measures is the Systematic Analysis of Language Transcripts software (SALT; Miller & Iglesias, 2008). SALT analyzes the narrative samples of English-Spanish speakers by generating important measures of language productivity and grammatical complexity, such as mean length of utterance (MLU), type-token ration (TTR), and words in mazes. However, it does not provide a fine-grained analysis of grammatical structures.

Several attempts have been made to develop systematic approaches to LSA for Spanish speakers. The Developmental Analysis of Spanish Grammar (DASG; Toronto, 1976) offers a more fine-grained analysis by scoring specific grammatical forms, such as reflexive pronouns and subject/verb agreement. Unfortunately, it does not assess those forms that are difficult for Spanish-speaking children with LI, such as article use. The DASG was adapted from Lee and Canter's (1971) Developmental Sentence Scoring (DSS) for English monolinguals, and though it is not a direct translation, it is heavily informed by the DSS which is problematic. The Narrative Assessment Protocol-Spanish adaptation (NAP-S; Gorman, Zúñiga, & Fiestas, in press) is currently under development. One limitation of the NAP-S, is that it does not integrate current developmental information to create developmental expectations. For example, the NAP-S looks at productivity of grammatical forms independent of age expectations and difficulty levels.

CURRENT PROJECT

The limitations of these existing tools highlight the need for a Spanish LSA procedure to be used for treatment planning and progress monitoring. Such a procedure would be more comprehensive than standardized tests; in addition to items selected to maximize discrimination, it would include items that are useful communicatively. Such a

measure would also potentially be useful for documenting change if developmental information expectations about the forms were available.

In order to determine what grammatical forms should be considered for a LSA scoring procedure, it is necessary to first have an understanding of the general structure of Spanish. Spanish is classified as a pro-drop language: because person and number are implicit in the inflection of verbs, overt subjects may be dropped. Word order is also relatively free (Bedore & Leonard, 2005).

Spanish noun morphology is very different from English noun morphology. Spanish nouns are marked for gender and number (Bedore, 1999): the majority of nouns that end in –o are masculine, while nouns that end in –a are feminine, with some exceptions. Pronouns and articles are also marked for gender, though there are some neuter pronouns (Butt & Benjamin, 1995). Pronouns and clitics must agree in gender and number with the nouns they replace, and articles and adjectives must agree in gender and in number with the nouns they modify.

Spanish verbs are more richly inflected than English verbs. First of all, singular and plural forms are distinctly marked. Spanish verbs are also marked for aspect (perfective, imperfective or progressive), mood (subjunctive or indicative), tense (present, imperfect, preterit, conditional or future), and person (Jacobson & Schwartz, 2002). The combination of aspect and tense allows the speaker to precisely situate events in time (Bedore, 1999), while mood selection is governed by whether the speaker is expressing a declaration or assertion of truth (indicative) or a belief that is not likely to be shared (subjunctive). All

Spanish verbs belong to one of three conjugational classes: -ar, -er, and –ir. Rules governing conjugations follow these classes, though there are some irregular conjugations.

It is clear that language-specific tools are necessary to better understand LI in English-Spanish bilinguals. Establishing a profile of impairment in Spanish for English-Spanish bilinguals with LI requires knowledge of those grammatical forms that are likely to be troublesome for this population. Spanish grammatical forms are reviewed below to identify possible targets for the LSA procedure.

GRAMMATICAL FORMS OF POTENTIAL INTEREST

Present Indicative First & Second Person

For regular verbs, the first person singular conjugation is formed by dropping the end of the word and adding *–o* (e.g., *andar→ ando*), while the first person plural conjugation adds *–amos* (e.g, *andar→andamos*), *–emos* (e.g, *comer→comemos*), or *–imos* (e.g., *vivir→vivimos*). The second person conjugation adds either *–es* (e.g, *comer→comes*), or *–as* (e.g., *andar→ andas*). In general, children with LI do not have difficulty with first or second person present indicative inflections. Bedore and Leonard (2005) found that bilingual children with LI averaged more than 99.5% accuracy on first person singular and plural present indicative. Although this form is not problematic for children with LI, monitoring it may help confirm or deny whether the child is passing through the optional infinitive stage and using nonfinite bare stems.

Present Indicative Third Person Plural

For regular verbs, the third person plural is formed by dropping the ending and adding *–an* (e.g., *andar → andan)* or *–en (*e.g., *comer → comen; vivir → viven).* For

bilingual children with LI, third person plural appears to be more problematic than other present tense conjugations (Bedore & Leonard, 2005; Jacobson & Schwartz, 2002). Some researchers argue that difficulty with present third person plural is evidence of the "optional-infinitive stage", in which Spanish-speaking children treat the third person singular present tense form as a sort of default form or "nonfinite bare stem" (Radford & Ploennig-Pacheco, 1995; Grinstead et. al, 2013). Errors that appear to be due to number disagreement (e.g., "*ellos come*" [they {singular} eat]) could actually be examples of nonfinite bare stems. Grinstead and colleagues aregue that the optional-infinitive stage is more severe and more prolonged for children with LI. Thus, it is necessary to pay attention to the third person plural in particular for evidence that children are marking verbs.

Third Person Singular Preterit Indicative, Third Person Plural Preterit Indicative

Spanish has two past tense verb forms: preterit and imperfect. The preterit tense is used to talk about actions that have been completed in the past (Butt & Benjamin, 1995). Regular third person singular preterit indicative is formed by dropping the ending and adding *–ó* (e.g., *tomar→ tomó*) or *–ió*, (e.g., *comer→ comió*). Regular third person plural preterit indicative adds *–aron* (e.g., *tomar→ tomaron*) or *–ieron* (e.g., *comer→ comieron*). Though bilingual children with LI are highly accurate with third person singular and plural preterit indicative, they are less accurate than their TD peers (Bedore & Leonard, 2001; Bedore & Leonard, 2005). From a diagnostic standpoint, preterit inflections do not appear to be strong clinical markers. For the purposes of goal selection and progress monitoring, preterit inflections are worth exploring since they are relatively more difficult for children with LI.

Irregular Present Indicative, Irregular Preterit Indicative

Like English, Spanish has some irregular verb conjugations. Some verbs are irregular only for certain person/number, and not all verbs that are irregular in the present tense are irregular in the past tense, and vice versa. Examples of present tense irregular verbs are *salgo (salir), va (ir),* and *eres (ser).* Past tense irregular verbs include *ser* (*fuimos*) and *andar* (*anduvieron*). There is evidence that Spanish speakers learn regular and irregular verb processes via a dual-mechanism model, meaning that regular verbs are rule-based while irregular verbs are memory-based (Clahsen, 2002). Clahsen found that for TD Spanish monolinguals, overregularization begins between ages 1;11-3;3 and significantly decreases with age, as representations become stronger and memory improves. There is literature to show that this same dual-mechanism model supports learning of English irregular and regular verbs (Clahsen, 1999; Pinker, 2002). Because the dual-mechanism model is thought to be active in both English and Spanish, it is logical to believe that English-Spanish bilinguals will also exhibit a decrease in overregularization of Spanish verbs over time, though this decrease will likely be slower for children with LI.

Present Subjunctive

The subjunctive is one of three moods in Spanish, and it is relatively more difficult to master than other structures. Present subjunctive *–ar* verbs are conjugated like present indicative *–ir*/*–er* verbs (e.g., *tomar*→*tomes*), and present subjunctive *–ir*/*–er* verbs are conjugated like present indicative *–ar* verbs (e.g., *comer*→*comas*). The present subjunctive emerges in TD children between the ages of 3 ½ and 4 ½ (González, 1983; Naharro, 1996). In general, the development of certain cognitive structures precedes the use of certain

linguistic structures; Perez-Leroux (1998) found that there is a strong correlation between use of the subjunctive mood and the capacity for understanding false beliefs. The subjunctive does not fully develop until adolescence in Spanish monolinguals (Blake, 1980), possibly because this is when children's understanding of false beliefs and non-actuality is strengthened.

Imperfect

Unlike the preterit, which is used to mark completed actions, the imperfect expresses actions that were ongoing or incomplete in the past (Butt & Benjamin, 1995). Examples of verbs conjugated in the imperfect are *comía (comer)* and *tomaba (tomar).* For example, the English sentence "I used to swim every day" would be translated into Spanish using the imperfect ("Nadaba todos los días.") Imperfect forms initially emerge as third person singular between the ages of 2 ½ and 3 (Bedore, 1999.) There is no currently available literature on how English-Spanish bilinguals with LI use the imperfect.

Command

Commands, or imperatives, are used to give orders or make requests. The *tú* imperative is formed by removing the *–s* from the second-person singular of the present indicative (e.g., *llamas*→*llama*) (Butt & Benjamin, 1995). There are nine irregular verbs for the *tú* imperative. The imperative form for the pronoun *usted* is formed using the third-person singular present subjunctive (e.g., *llama*→*llame*), and the *ustedes* imperative uses the third-person plural present subjunctive (e.g., *llaman*→*llamen*). The *tú* command was observed by González (1978) in TD monolingual Spanish-speaking children as young as

2;0. By 3;0, commands were well-established and were complex: children were using command + indirect object construction.

Ser, Estar Copula, Estar Auxiliary

Though there are fundamental distinctions between the copula verbs *ser* and *estar*, both can both be translated as "to be". In general, *ser* is used for descriptions of permanence, while *estar* is used for temporary states or conditions, though there are several exceptions (Butt & Benjamin, 1995). Studies of TD monolingual Spanish-speakers show that children begin to distinguish between the two copula verbs by age 4, and that they appear to better understand the temporal constraints of *estar* (Schmitt & Miller, 2007; Requena, Román-Hernández, & Miller, 2014). Because this distinction doesn't exist in English, difficulties with the copula verbs in Spanish may manifest as English exposure increases. In fact, Silva-Corvalán & Montanari (2008) observed that a TD English-Spanish bilingual acquired *estar* later than Spanish monolinguals.

Progressive (Not Including Auxiliary)

The progressive is formed similarly in both English and Spanish, involving the use of an auxiliary verb and a gerund. However, in Spanish, progressive forms are not the default for describing actions in the present (Bedore, 2001). For example, "The boy is crying" could be translated into Spanish using the simple present ("*El niño llora*") or the present progressive ("*El niño está llorando*.") While there is no literature indicating that the gerund is problematic, Toronto's (1975) DASG analyzed this form, so it will be included.

Infinitive Clause

Spanish infinitive verbs end in *–ar (*e.g., *andar), -er (*e.g., *comer),* or *–ir (*e.g., *vivir).* An infinitive cannot by itself express number, mood, time or person (Butt & Benjamin, 1995). Use of infinitive clauses develops early and should not be problematic. Gutierrez-Clellen & Hofstetter (1994) found that in TD monolingual Spanish speakers, there is not increased frequency of use from preschool to third grade. However, in spite of no differences in frequency, there was increased accuracy of use. Currently available literature does not comment on the use of infinitive clauses in English-Spanish bilinguals with LI.

Periphrastic Future

The periphrastic future is one form of the infinitive clause. It is similar to the English construction "going to [infinitive]" (e.g., *I am going to cook).* It is formed using *ir* + *a* + infinitive (e.g., *voy a cocinar).* Toronto's (1975) DASG scored periphrastic future separately, so it is worth exploring if children perform differently with these similar forms.

Nominative Personal Pronouns

Overt personal pronouns, or subject pronouns, are associated with a particular grammatical person: first person singular (*yo*), second person singular informal (*tú*), second person singular formal (*usted*), third person singular (*él, ella*), first person plural (*nosotros*), second person plural *(ustedes*), and third person plural (*ellos, ellas*). Spanish is a pro-drop language, meaning that pronominal subjects may be overt or null. Unlike English, Spanish verbs are marked for person and number such that the subject is implied by verb conjugation. This means that nominative personal pronouns, which act as subjects, are frequently omitted. Grinstead (1998) found that young children go through a stage in which

no overt subjects are produced, but by age 2;11 overt subjects become more common. Pragmatically, overt subjects are needed in order to establish a referent before the subject can be dropped. In other words, children will not necessarily use nominative personal pronouns in spontaneous speech; LI children may be less productive than TD children with this form if they have a less clear representation of the need to establish a referent.

Direct Object Clitics

A direct object clitic can take the place of a full noun phrase when the referent has already been introduced, and it must agree in number and in gender with the noun phrase it is replacing. Direct object clitics can be placed in the preverbal position (*lo comiste*, [you ate it]), in the postverbal position with an infinitive (*quiero comerlo* [I want to eat it]) or an imperative (*comételo* [you eat it]*)*. Although direct object clitics appear early in TD children, accuracy of use develops gradually (Shum et al., 1992) and direct object clitics pose a particular challenge for children with LI (Anderson, 1998). Researchers agree that preschool-age Spanish-speaking children with LI have low levels of accuracy with direct object clitics and that omission is a significant pattern (Jacobson & Schwartz, 2002; Simon-Cereijido & Gutierrez-Clellen, 2007; Bedore & Leonard, 2005). Preschool-age Spanish-speaking children with LI use direct object clitics inconsistently, indicating that they have an incomplete understanding of the rules governing use of direct object clitics.

Indirect Object Clitics

Indirect object clitics take the place of the name of the indirect object and use the following pronouns: first person singular (*me*), second person singular informal (*te*), second person singular formal/ third person singular (*le*), first person plural (*nos*), and

second person plural/third person plural (*les*). For example, the utterance "*Le di el regalo"* [I gave her the present], *le* refers to the recipient of the present. Additionally, *se* is substituted for *le* and *les* in certain circumstances. Indirect object clitics must agree in number, though not gender, with the object it is replacing. In two 4-year-old bilingual Basque-Spanish children, the clitics *me, te,* and *le* were acquired prior to direct object clitics (Ezeizabarrena & Unibertsitatea, 1997). Though Basque and Spanish are less typologically related than English and Spanish, it is reasonable to believe that this pattern will be consistent in English-Spanish bilinguals with LI: indirect object clitics may pose less of a challenge for children with LI since they need only consider number agreement and not gender agreement.

Reflexive Personal Pronouns

A verb is reflexive when the subject and the object are the same. In Spanish, the reflexive pronouns are first person singular (*me*), second person singular (*te*), second person plural/third person singular/third person plural (*se*), and first person plural (*nos*). Spanish reflexive pronouns are, for the most part, obligatory (Anderson, 1998). Verbs like *peinarse* (to brush one's hair), *lavarse* (to wash oneself) and *bañarse* (to bathe oneself) all require the reflexive personal pronoun. There is no currently available literature on how English-Spanish bilinguals with LI perform with reflexive personal pronouns. However, this form is related to indirect and direct object clitics, in that it must have a referent and that it can be used pre- or post-verbally. Hypothesized difficulty with direct and indirect object clitics informs the inclusion of reflexive personal pronouns on this LSA procedure.

Number Marking

Adjectives and articles must agree in number with the plural nouns they modify, and pronouns must agree in number with the plural nouns they replace. Marking plural nouns is very similar in English and in Spanish. In English, plural marking involves adding *–s, -z* or *–iz* to the ends of words, and in Spanish either *–s* or *–es* is added to the ends of words (e.g, *perros, flores*). Studies show that TD and LI monolingual English speakers have more difficulty marking words that require the non-canonical *–iz* (e.g., classes). Similarly, TD and LI Spanish-speakers have more problems marking words with the non-canonical *–es* (e.g., flores) (Grinstead, 2008). Bedore and Leonard (2005) found that children with LI used plural nouns less often than TD peers but that they still showed high degrees of accuracy. Unlike gender, number is considered a morphological feature that combines with the stem of the word, representing an additional operation (Bedore & Leonard, 2005). Thus, number agreement may be more troublesome.

Gender Agreement

In addition to marking number, Spanish marks articles, nouns, and adjectives for gender, while English does not mark nouns as masculine, feminine or neutral. With several exceptions, most feminine nouns end in –a (e.g., *la mesa* [the table]) and most masculine nouns end in –o (e.g., *el plato* [the plate]), making gender highly predictable. Gender marking on nouns, articles, adjectives, and many pronouns (including direct object clitics) is obligatory, but gender is a lexical feature of the word, so there is not an additional operation to add gender (Barber & Carreiras, 2005). Most researchers agree that "article + noun" agreement appears around 24 to 30 months in TD children (Anderson, 1995; Linares,

1983). However, there is some evidence that gender associations between Spanish articles and nouns may lose strength when children are exposed to English (Anderson, 1999). Thus, it is important to continue to monitor gender agreement as English exposure increases.

Negative Concord

Romance languages are generally considered Negative Concord languages, meaning that there is more than one negative element in the clause but it is interpreted as having a single instance of negation (Zagona, 2002). For example, *no* [no] and *nunca* [never] are the negative elements in *Ella no lee nunca*, but the sentence is interpreted to mean "she never reads" rather than "she no never reads". In English, negation involves only one negative element. It is possible that negative concord will become less accurate as English exposure increases.

Question Words

Spanish interrogative pronouns and adverbs are *cómo, cuál, cuándo, cuánto, dónde, para qué, por qué, qué,* and *quién.* In general, Spanish syntax is more flexible than it is in English. However, when a sentence or clause begins with an interrogative word, verb-subject word order is used (Butt & Benjamin, 1995). It is worth exploring how English-Spanish bilinguals with LI perform with the restricted word order required to use this form.

Relative Clause

As in English, a relative clause is an embedded clause that modifies a noun phrase. For example, "*Él hombre que tiene el perro es mi amigo*" [The man that has a dog is my friend] functions as a relative clause in both languages. Spanish relative clauses emerge by age 3 but are not used consistently (Aguado, 1989). Preschoolers may use relative clauses

to present referentially complex information, but they may be ambiguous. On the other hand, first graders use relative clauses more frequently and successfully achieve referential cohesion. In other words, construction of relative clauses by English-Spanish bilinguals with LI should not be in error, but should become more productive and more specific with age.

PURPOSE

The purpose of the current study is two-fold: to establish a profile of impairment of bilingual English-Spanish LI children and identify those grammatical forms that would serve as developmentally-appropriate therapy targets. Based on the results, the second goal is to develop a scoring procedure for those grammatical forms. Specific questions include:

1. Which grammatical forms are consistently problematic for children with LI above and beyond clinical markers?
2. What grammatical forms should be included on a LSA scoring procedure?

Chapter 2: Methods

The data for this study was selected from data previously collected for the study *Development of a Test for Hispanic Children in the US* (referred to as the Test Development Study). The current analysis focuses on the play sample that was collected as part of the verification data to confirm language ability status for the test standardization studies. For the present study, the research question was addressed in two phases. Initially, 27 grammatical forms were proposed for the language sample scoring procedure. In second phase of the study, some items were discarded and others were combined so that the final scoring procedure included 20 items.

PARTICIPANTS

Children were selected for this analysis if they provided a play sample in Spanish as part of the Test Development Study. Bilingual status was determined through parent and teacher report. At the time the data was collected, there were no gold standard measure available for identifying LI in bilingual children, so language status was determined through analysis of converging evidence. Data used to determine a child's language status included parent/teacher/clinician concern and percent grammaticality. Additional qualitative measures included to further disambiguate children's status: a child was classified as LI if they had two out of three of indicators of impairment. In the case of disagreement, quantitative language measures were used. Children were considered to be TD if over 80% of the utterances in the language samples in the better language were grammatical.

Participants from the Test Development Study were recruited from school districts in Texas and Pennsylvania prior to kindergarten enrollment (Gutiérrez-Clellen et al., 2006; Peña et al., 2002). In the first stage of the present study, twelve children's language samples were selected. To be included, the child needed to be bilingual and have a play sample in Spanish. In the second phase of the study, the inclusion criteria further required that the language sample be at least 50 utterances long. Nine participants from Phase I met the new inclusion criteria, and 27 additional participants were selected. A total of 36 participants (16 LI and 20 TD) were included in Phase II of the study.

LANGUAGE SAMPLING PROCEDURES

ASHA-certified bilingual SLPs or trained bilingual graduate students supervised by licensed bilingual SLPs collected language samples for the Test Development Study. A story retell, a story tell, and a spontaneous play sample were collected in all of the child's languages. Language samples were recorded with audio tapes. Trained bilingual research assistants transcribed and coded the language samples in SALT (Miller & Iglesias, 2008). Transcription reliability was completed for 20% of the language samples; word-level transcription reliability was 90%.

The present study focused on the play samples because there is no currently available LSA measure for this type of language sample. The language sampling procedure for play samples was standardized by using the same toys (e.g., a farm set) and using the same prompts (e.g., "*Has ido a una granja*?" ["Have you ever been to a farm?"]; "*Alguna vez estabas enfermo*?" ["Have you ever been sick?"]) to lead the conversation. Examiners

used back-channel responses (e.g., "*Platícame sobre eso*" ["Talk to me about that,"]; "*De veras*?" ["Oh, really?"]) to encourage the children to talk.

SCORING PROCEDURES

The Test Development Study used SALT to code grammatical errors. Lexical errors, cohesion errors, and phonological errors were not counted as grammatical errors. The analysis set did not include unintelligible utterances or utterances with code-switching. SALT was used to generate standardized measures such as total number of words (TNW) and mean length of utterance (MLU) for each participant.

For the current study, additional coding and scoring was completed by a bilingual graduate clinician and a trained bilingual undergraduate student. The focus of the scoring was to identify correct and attempted use of a preset list of grammatical forms. Scoring was completed in two phases. In the first phase of the study, 27 grammatical forms were proposed for the language sample scoring procedure, and 12 language samples were analyzed using all of the proposed items. In the second phase, several of the originally proposed items were discarded from the scoring procedure. Items were discarded if they occurred too infrequently (e.g. Negative Concord), if they were highly accurate (e.g., Nominative Personal Pronouns), or if they occurred so frequently that scoring proved to be tedious (e.g., Null Subject). The rest of the language samples were scored with the 20 remaining items. Refer to table 2.2 to see the items from Phases I and II with examples of utterances scored as correct and incorrect for each target grammatical form.

Scoring was completed in Microsoft Excel. The first 100 utterances of each Spanish play sample were copied and pasted from SALT into Microsoft Excel and analyzed for

their use of 20 grammatical forms. Each of the 20 grammatical forms was scored for each of the up to 100 utterances.

The five previous utterances of both the examiner and the child were considered when scoring each utterance. In other words, utterances were not scored in isolation but were considered in the context of the language sample. For example, one child said, "*Barney la puso*," [Barney put it on] which is without gender-marking errors when considered on its own. However, in the context of the examiner's previous utterance (*es un sombrero*), the child incorrectly marked the gender of the direct object.

Next, each utterance was scored based on its target production. In the utterance, "*Me dan globitos para que hago unas cositas*," [They give me little balloons so I can do some things] the target is *haga* (Present Subjunctive). In this case, *hago* was not scored as correct or incorrect for Present Indicative Irregular or First/Second Person Present Indicative. It was only counted as incorrect for the target, Present Subjunctive. In the case of an unknown target, the utterance was not scored.

Partially unintelligible utterances were included in the analysis set for the current study and were scored for only those grammatical forms for which the target was known. For example, the utterance "*Necesitamos un x"* [We need a x] cannot be scored for Number/Gender Agreement since the noun is unknown. However, it receives credit for use of the Second Person Plural Present Indicative. The utterance "*hay iba xx con xx"* [There is was going xx with xx] cannot be score since the target utterance is unknown. Utterances with code-switching were also included in the analysis set for the current study and were scored when possible. In the utterance, *"Aquí está el horsie*," [Here's the horsie] the

English word “horsie” agrees in number with the verb and the article. However, gender agreement cannot be scored since English nouns are not gendered. Words in mazes were not scored.

In the case that a form is used more than once in a single utterance, the form is scored only once. In the utterance, “*Mi dan un globito y una bolsita para que hago unas cositas*” [They give me little balloons so I can do some things], all three articles agree in gender and in number with their respective nouns, but the utterance will receive only one point for number agreement and one point for gender agreement. When a grammatical form is used more than once in an utterance and one of those uses is incorrect, the utterance will not receive credit for that form. For example, “*Y podíamos hacer como nosotros queremos andar en el río o el monte”* [And we were able to do whatever we want walk in the river or the hill] should use the verb *queríamos* [wanted] so that the tense is consistent through the sentence. Although one verb (*podíamos* [were able]) correctly uses the imperfect, the other verb (*queremos* [want]) does not, so this utterance is considered to have incorrect use of Imperfect.

A grammatical form was given a score of 2 if it was correctly used and a score of 1 if it was attempted. A grammatical form did not receive a score if it was neither attempted nor used. For each language sample, total scored was tallied for each grammatical form. After all language samples were scored, a weighted score was calculated for each grammatical form for each language sample, and a mean weighted score was calculated for the groups of LI and TD participants. Interrater reliability for the Phase II samples was at

least 90%. Table 2.1 shows grammatical forms included on Phases I and II, and includes examples of utterances marked as correct and incorrect for each item.

Table 2.1: Phase I and II Items with Example Utterances.

Target structure	**Example of utterances marked as correct**	**Example of utterances marked as incorrect**
Irregular Present Indicative (any person or number)	*Tengo* un gato que está allá Él *es* un dinosaurio que *tiene* los dientes.	Yo no *sabo* donde. [El dóctor] *cierre* la puerta.
First/Second Person Singular/Plural Present Indicative (irregular and regular)	*Tengo* un gato que está allá *Sabes* una persona como eso	Y luego [yo] *sacó* los juguetes. Y [yo] no *tiene* miedo.
Third Person Plural Present Indicative (irregular and regular)	Los animales *son* ositos. Cómo se *van* a bajar [ellos]?	Aquí *está* la vaca y la gallina. A mi me *da* miedo las víboras
Irregular Preterit Indicative (any person or number)	Le *dije* a mi mami si es que los podría traer. Se *fueron* al mall	Se subió arriba a mirar que ya lo *ponieron.* No la *trajió* nunca.
Third Person Singular Preterit Indicative (irregular and regular)	Ya *vino* la ambulancia Me *asustó* mi hermano.	Tomás le *castigaron* a él. Y no le *hicieron* nada su mama.
Third Person Plural Preterit Indicative (irregular and regular)	Si *llenan* una línea, *ganan*. Me *dieron* un globito. Cuando *vieron* un monstruo.	Se subió arriba a mirar que ya lo *ponieron.* *Hincó* unas gotitas.
Present Subjunctive (any person or number)	Para que *tengan* un buen paseo. Para que se *metan* los horsies.	No tiene el éste para que *nada.* Que [tú] lo *pongan* aquí
Imperfect (any person or number)	Yo *tenía* pollito. *Estaban* comiendo	Y *podía* hacer como nosotros *queremos* andar en el río o el monte. (Targets are *podíamos* and *queríamos*.)
Command	*Llévalo* acá. *Súbelo* aquí.	No te *despones.* No other errors.

Table 2.1: Continued.

Progressive (not including auxiliary)	Estaban *peleando.* Ya viene *corriendo* este.	No errors
Ser (any tense, person or number)	Para qué *es* esto? *Son* filosas. *Eran* brujas.	*Están* animales. ¿*Está* chiquito, verdad que sí?
Estar Auxiliar (any tense, person or number)	*Estaba* jugando con la familia de Luis *Estamos* jugando aquí	No errors.
Estar Copula (any tense, person or number)	Tengo un gato que *está* allá Y este el chiquito *está* mal. Este va a *estar* aquí.	Y unos esos *son* allí en la granja. No other errors.
Nominative Personal Pronouns (singular and plural)	Y *yo* sé los horsies. *Él* no va a ir a la escuela.	No errors.
Null subject	Se murió. No sé. Y tenía pollito.	No errors.
Reflexive Personal Pronouns	Vi a una persona vistiéndo*se* como malo. No *te* vayas.	Yo *me* lloro donde el dóctor. No *mi* acuerdo.
Direct Object Clitics	Déja*lo* allí. *La* podemos poner al timeout.	Y mi papí *les* pegó. Porque Barney *la* puso. (referring to el sombrero)
Indirect Object Clitics	*Me* gustan los caballos. A ti *te* dan miedo?	No *la* queda uno. Llévas*e*lo. (Target is llévat*e*lo.)
Article Omission	Correct use not applicable.	**Un* caballo, **una* vaca, **un* puerco y una chicken. Él es el primo en **la* familia. **El* caballo está chiquito.
Gender Agreement (articles, nouns/pronouns, adjectives)	Mi dieron *un globito* para que hago *unas cositas* *Los panes* les dejaron allí.	Viven en *un jaula*. La llevan en *las arroyo*.
Number Agreement (articles, nouns/pronouns, adjectives)	Mi dieron *un globito* para que hago *unas cositas.* No, ya se me murieron *mis pescaditos.*	La llevan en *las arroyo*. Con *sus comida*

Table 2.1: Continued.

Plural Nouns	Hay *animales.* *Hermanos* es una *mujeres.*	No les puse *nombre.* No other errors.
Negative Agreement	Ya *no* está. *No* tienen *nada.*	No errors.
Questions (Syntax)	¿*Quién* es? ¿*Cómo* se van a bajar?	¿Y el gallo dónde se va? (incorrect word order) ¿Y el ésto para dónde está? (incorrect word order)
Relative Clauses	Estaban echando agua donde estaba quemando. Si llenan una línea, ganan.	No errors.
Infinitive Clauses	Se puede *caer*. No podía *levantarse*.	No tiene donde *ponga* el éste. Y después la vaca quería *come* pasto.
Periphrastic Future (any person or number)	Cómo se *van a* bajar? Este *va a* estar aquí.	No errors.

Chapter 3: Results

The data for this project was analyzed in two phases. Recall that in Phase I, 12 language samples were scored for their use of 27 different grammatical forms. Results from Phase I served as preliminary evidence to refine the Phase 2 LSA scoring procedure. Items were retained if children showed difficulty with the form or there was sufficient evidence in the literature for its inclusion. Items were discarded if they were not found to be informative due to low productivity, high accuracy, or high productivity with high accuracy. Some items (i.e., Estar Auxiliary/Estar Copula, Periphrastic Future/Infinitive Clause) were merged because children's scores were not disparate on these similar forms. Furthermore, Article Omission was removed because it was the only item for which directionality of scoring was reversed. Omission was counted as incorrect, but in the final stages of scoring, errors earned one point because they were considered "emerging". This scoring scheme does not function for omission. Table 3.1 shows the mean scores on each grammatical form by Phase I participants, ordered by difficulty. Forms that were removed from the final LSA scoring procedure are bolded and a brief description of the rationale for removal is given.

Table 3.1: Mean Weighted Scores for Each Grammatical Form of Phase I Participants Combined.

Grammatical Form	***Mean***	***(SD)***	***Reason for Removal***
Present Subjunctive	0.68	(0.79)	
Negative Agreement	**1.14**	**(1.89)**	**Low productivity**
Article Omission	**1.48**	**(2.41)**	**Directionality of scoring**
Command	**2.55**	**(2.62)**	**Low productivity**
Periphrastic Future	**4.86**	**(5.21)**	**Included in Infinitive Clause**
Question words	5.08	(3.82)	
Third Person Plural Preterit Indicative	5.25	(4.37)	
Estar Copula	**5.93**	**(4.51)**	**Combined with Estar Auxiliary**
Ser	6.78	(7.23)	
Infinitive Clauses	7.54	(8.67)	
Relative Clauses	7.58	(9.78)	
Irregular Preterit Indicative	8.04	(7.76)	
Progressive	**8.12**	**(12.16)**	**High accuracy**
Third Person Plural Present Indicative	8.18	(7.32)	
Estar Auxillary	**8.97**	**(11.78)**	**Combined with Estar Copula**
Nominative Personal Pronouns	**9.04**	**(8.62)**	**High accuracy**
Indirect Object Clitics	9.10	(6.91)	
Reflexive Personal Pronouns	12.78	(5.19)	
First/Second Person Present Indicative	13.02	(10.51)	
Third Person Singular Preterit Indicative	13.17	(7.43)	
Direct Object Clitics	14.66	(6.77)	
Imperfect	15.85	(17.36)	
Plural Nouns	18.74	(12.36)	
Irregular Present Indicative	35.75	(16.55)	
Gender Agreement	47.45	(23.96)	
Number Agreement	54.31	(26.46)	
Null Subject	**65.63**	**(16.87)**	**High productivity and accuracy**

* bolding indicates item was not included on Phase II LSA procedure

In Phase II, 36 language samples were scored using the 20 grammatical forms that remained on the final LSA scoring procedure. In order to establish some guidelines for typical development on the grammatical forms, the results of the LSA were first analyzed for the TD participants. A median split analysis was performed based on MLU (mean 3.62) to see which forms became more accurate/ productive with development. Production of some of the forms improved by at least 50% (e.g., Indirect and Direct Object Clitics, Relative Clauses, and Gender Agreement) and all but three grammatical forms (i.e., Question Words, Present Subjunctive, and First and Second Person Present Indicative) showed at least some growth. Table 3.2 displays the mean total scores and standard deviations of TD participants, sorted by MLU. For Phase II, there were 11 children with an MLU below the median (mean= 3.087, SD= 0.345). There were 9 children with an MLU above the median (mean= 4.272, SD= 0.471).

Table 3.2: Mean Weighted Scores for Each Grammatical Form by TD Children Sorted by MLU.

Grammatical Form	**MLU >3.62**		**MLU <3.62**		**% Change**
	Mean	**SD**	**Mean**	**SD**	
Question Words	5.90	(4.94)	5.37	(5.18)	-8.97%
Present Subjunctive	1.35	(1.93)	1.30	(1.33)	-3.32%
First/Second Person Present Indicative	16.03	(9.03)	16.00	(8.14)	-0.15%
Estar	14.94	(10.91)	17.87	(5.67)	19.65%
Irregular Preterit Indicative	30.79	(10.31)	41.89	(14.79)	36.05%
Number Agreement	45.05	(21.31)	63.72	(14.49)	41.45%
Plural Nouns	12.81	(5.67)	18.33	(11.38)	43.07%
Third Person Plural Preterit Indicative	4.58	(3.42)	6.75	(3.91)	47.40%
Indirect Object Clitics	9.65	(5.39)	14.64	(7.17)	51.77%
Ser	6.25	(4.33)	9.69	(9.69)	55.04%
Direct Object Clitics	11.33	(5.68)	18.01	(6.63)	58.89%
Infinitive Clauses	12.14	(5.83)	19.36	(16.26)	59.54%
Gender Agreement	34.37	(13.72)	55.52	(14.21)	61.55%
Third Person Plural Present Indicative	5.96	(6.31)	9.81	(5.84)	64.72%
Irregular Present Indicative	7.55	(5.08)	14.83	(10.07)	96.35%
Reflexive Personal Pronouns	15.59	(5.06)	30.90	(22.79)	98.12%
Third Person Singular Preterit Indicative	10.92	(8.57)	22.13	(11.01)	102.56%
Imperfect	10.47	(10.22)	23.21	(14.12)	121.67%
Relative Clauses	1.30	(2.07)	11.23	(10.80)	760.91%

Mean and standard deviation of each grammatical form were also calculated for the LI samples in order to determine which forms LI children consistently perform poorly on. The most problematic forms were Relative Clauses, Present Subjunctive, Third Person Plural Present and Preterit Indicative, Irregular Preterit Indicative, Infinitive Clause, Indirect and Direct Object Clitics, Imperfect, and Plural Nouns. TD children performed better on all but two forms: Question Words and Ser. Table 3.3 orders the grammatical

forms from lowest to highest mean score by the LI children and compares their scores to those of the TD children.

Table 3.3: Mean Weighted Scores for Each Grammatical Form Listed by Difficulty for LI Participants and Compared to TD Participants.

Grammatical Form	**LI Mean**	**(SD)**	**TD Mean**	**(SD)**
Relative Clauses	0.80	(1.30)	5.77	(8.77)
Present Subjunctive	0.81	(2.04)	1.33	(1.65)
Third Person Plural Preterit Indicative	2.45	(4.30)	5.56	(3.72)
Irregular Preterit Indicative	4.36	(5.41)	10.82	(8.37)
Third Person Plural Present Indicative	5.51	(5.24)	7.69	(6.26)
Infinitive Clauses	6.25	(6.03)	15.39	(11.95)
Direct Object Clitics	6.31	(4.71)	14.34	(6.86)
Imperfect	6.52	(8.56)	16.20	(13.46)
Question Words	7.66	(8.64)	5.66	(4.92)
Indirect Object Clitics	8.46	(11.24)	11.89	(6.59)
Ser	8.49	(6.69)	7.80	(7.25)
Plural Nouns	9.35	(9.72)	15.29	(8.91)
First/Second Person Present Indicative	13.05	(10.99)	16.02	(8.41)
Third Person Singular Preterit Indicative	13.42	(11.12)	15.96	(11.06)
Estar	13.64	(9.69)	16.26	(8.86)
Reflexive Personal Pronouns	20.38	(17.68)	22.48	(17.12)
Irregular Present Indicative	32.66	(14.46)	35.78	(13.42)
Gender Agreement	39.38	(25.19)	43.89	(17.34)
Number Agreement	49.70	(29.03)	53.45	(20.45)

Chapter 4: Discussion

The primary purpose of the present project was to identify the profile of English-Spanish bilingual children with LI and to determine which grammatical forms would serve as developmentally appropriate therapy targets. In doing so, the secondary purpose was to develop a scoring procedure for those forms.

Once the final 20 grammatical forms were chosen to be included on the Phase II LSA scoring procedure, the language samples of 16 bilingual LI children (mean age 4;10) were scored for their correct and attempted use of those forms. Based on these results, the profile of a bilingual child with LI emerged. The most problematic forms were considered to be those with very low productivity or those forms for which the TD children had much higher weighted means. These forms were Relative Clauses, Present Subjunctive, Third Person Plural Present and Preterit Indicative, Irregular Preterit Indicative, Indirect and Direct Object Clitics, Imperfect, Infinitive Clause, and Plural Nouns. In general, the profile that was identified through this project was supported by the literature, though there was an unexpected discrepancy with Plural Nouns: the LI children did more poorly than expected. Furthermore, the LI children had higher mean scores than the TD children on Question Words and Ser. However, given the standard deviations of the scores, performance on these forms is not significantly different. Below, the findings are considered in light of the literature, and revisions for scoring are suggested.

LOW-SCORING FORMS FOR LI CHILDREN

Relative Clauses

Consistent with Aguado's (1989) findings that Relative Clauses are not used by TD monolingual Spanish-speaking children consistently until about first grade, the LI preschoolers had low productivity with this form. Future revisions of this scoring procedure should weigh this syntactical construction more heavily with development, as high productivity is not expected in early stages of development.

Present Subjunctive

Present subjunctive was the second lowest-scoring form for the children with LI. The present subjunctive emerges in TD children between the ages of 3 ½ and 4 ½ (González, 1983; Naharro, 1996), so it is not surprising that this form was only beginning to be used by the LI children. The present subjunctive was one of only three forms that saw a decrease in mean score with development in MLU with the TD children. TD children with MLUs less than 3.62 had a mean weighted score of 1.35 (SD= 1.93), while TD children with MLUs greater than 3.62 had a mean weighted score of 1.30 (SD= 1.33). In other words, the mean scores were very similar in these two MLU brackets. It is unlikely that TD children are becoming less accurate with present subjunctive; this finding rather shows that present subjunctive continues to have low productivity even in TD children around this stage of development. Furthermore, Present Subjunctive has less communicative value at a young age: most conversations revolve around the here-and-now, rather than discussing doubt, opinion, or hypothetical situations. For these reasons, Present Subjunctive should be removed from future revisions of this LSA scoring procedure.

Third Person Plural Present and Preterit Indicative

There is extensive evidence that Third Person Plural is more problematic than other forms for children with LI (Bedore & Leonard, 2001; Bedore & Leonard, 2005; Jacobson & Schwartz, 2002). Not surprisingly then, Third Person Plural Present and Preterit Indicative conjugations were low-scoring forms for the LI children in this study, while other present and preterit indicative conjugations were highly accurate. There is good reason that these forms should be retained on a revision of the LSA procedure. However, scoring should be altered; the Third Person Plural Present and Preterit Indicative categories included both regular and irregular conjugations, though there were separate categories for Preterit Irregular and Present Irregular verbs. Additionally, both regular and irregular verbs were included in the scoring of Third Person Singular, and First and Second Person Singular and Plural forms. Because there is evidence that irregular and regular verbs are learned via a dual-mechanism model (Clahsen, 2002), a future revision should change the scoring to include only regular verbs to better understand LI children's use and representation of morphological rules.

Irregular Preterit Indicative

The LI children had low scores for Irregular Preterit Indicative, though Irregular Present Indicative had one of the highest mean weighted scores for children with LI. Since present and preterit indicative irregular verbs are presumably both memory-based via the dual-mechanism model (Clahsen, 2002), it is somewhat unexpected that children performed so differently on these forms. It is likely that the sampling context influenced these results, as the TD children also had much lower scores for Irregular Preterit Indicative

than for Irregular Past Indicative. Although each session included specific questions to prompt the child to talk about past events, the play-based nature of the interaction meant that the majority of each conversation revolved around the here-and-now (e.g., *Eso es Barney* [This is Barney]; *Allí va Barney*, [There goes Barney].) Additionally, a child with a severe LI could potentially still receive a high score for Irregular Present Indicative if he/she simply repeated *No sé* [I don't know]. Thus, a future revision should treat the phrase "*no sé*" differently, perhaps by excluding it from the scoring of Irregular Present or by weighing it much less heavily than other verbs.

Imperfect

Imperfect is another form that appears to be a source of difficulty in the language profile of LI children. There is very little developmental literature on LI children's use of imperfect, so it is difficult to comment on this finding. Because children did have such low scores with this form, revisions of the scoring procedure should break out the category into different person and numbers to investigate if there is a specific person or number that is causing difficulties.

Indirect and Direct Object Clitics

Indirect and Direct Object Clitics were also low-scoring items for LI children. Researchers agree that Direct Object Clitics are used inconsistently and have low levels of accuracy (Jacobson & Schwartz, 2002; Simon-Cereijido & Gutierrez-Clellen, 2007; Bedore & Leonard, 2005). There is no currently available research on Indirect Object Clitics; however, it was hypothesized that Direct Object Clitics would pose more of a problem for the children, since Direct Object Clitics must agree in gender and in number

with the objects they are replacing, while Indirect Object Clitics require only number agreement. Indeed, the results of the analysis confirmed this hypothesis, though both forms were low-scoring. These items should be retained on a revision of the LSA procedure, though scoring should be reexamined. Clitics with no referent were marked as incorrect, but in the final stages of scoring, items marked as incorrect received a point for "emerging". Further exploration of clitic use is needed to determine the best way to score these examples.

Infinitive Clauses

The LI children further had low productivity with Infinitive Clauses. Gutierrez-Hofstetter (1994) found that TD monolingual Spanish-speakers had increased accuracy of use, though not frequency of use, of infinitive clauses from preschool to third grade. It is unclear what this implies for LI children, so it is difficult to say whether findings for Infinitive Clause are supported by the literature. However, it is worth noting that the LI children's mean weighted scores on this construction were less than half that of the TD children, so this form should consider to be explored through this LSA procedure.

Plural Nouns

Based on the literature, it was not expected for the LI children to score so poorly on Plural Nouns. Grinstead (2008) and Bedore and Leonard (2005) reported that LI children had high levels of accuracy with plural marking. When looking more closely at the original data, rather than examining just the mean weighted scores, it becomes clear that children simply had low productivity with this form. Accuracy of use was very high.

Ser and Question Words

The two items for which the LI children received higher mean scores than the TD children are Ser and Question Words. These findings likely have to do with low productivity of these form in both participant groups. It is possible that with more opportunities for use, the mean scores would even out between the LI and TD participants. Because LI children had few errors with Ser and Question Words, it is recommended that these forms be removed from a revision of this LSA procedure. Recall that Ser and Estar were included in the scoring procedure to see if the LI children had difficulty distinguishing between these two forms of the verb to be. It appears that this distinction was not an area of difficulty for the children. One argument is that as English exposure increases, this distinction may become less clear, since English has only one form of the verb to be. For this reason, these forms should remain on the scoring procedure. However, Question Words should be removed.

ADDITIONAL REVISIONS TO THE SCORING PROCEDURE

Beyond the revisions to scoring discussed above, there are some additional considerations. First of all, Reflexive Personal Pronouns (*me, te, se)* should be reexamined. Specifically, there are several uses of the pronoun *se,* including the impersonal *se* (e.g., *se dice que el restaurante es bueno* [it's said that the restaurant is good]), passive *se* (e.g., *se ve un bosque desde mi ventana* [a forrest is seen from my window]), and accidental *se* (e.g., *se me cayeron las llaves* [I accidentally dropped the keys]). Additionally, some verbs have different meanings when used with reflexive personal pronouns, like *lavarse* (to wash oneself) and *lavar* (to wash something else). In some cases, it is difficult to know whether

the omission of a reflexive personal pronoun is a semantic choice or if the child is attempting use of a reflexive word. The different uses of the pronoun *se* and the lack of clarity surrounding use of reflexive verbs presents challenges for the scoring of Reflexive Personal Pronouns. Better defined rules for scoring this form should be established in the future.

One proposed structural change to scoring has to do with how errors are counted for certain forms. In the current scoring procedure, correct use is awarded 2 points, whereas incorrect use is awarded 1 point because it is "emerging". This scoring scheme is effective for many of the structures, but it does not make sense for Gender or Number Agreement. Because it is obligatory to mark the gender and number of nouns, pronouns and adjectives in Spanish, omission is not a possibility, and errors should not be considered evidence that the form is emerging. Thus, errors of Number or Gender Agreement should not be awarded points. This change my shift what the profile of impairment looks like.

Another major structural revision has to do with how errors are scored. In the current scoring procedure, each utterance was scored based on its target production. In the utterance, "*Me dan globitos para que hago unas cositas*," the target was considered to be *haga* (Present Subjunctive). In this case, *hago* was not scored as correct or incorrect for Present Indicative Irregular. It was only counted as incorrect for the target, i.e., Present Subjunctive. However, James (1998) argues that when analyzing errors, it is prudent to score only the attempted form. Thus, in the example above, the child's utterance should have been marked as incorrect for Present Indicative Irregular, rather than for Present Subjunctive. As James (1998) points out, we can only expect the child to develop a strong

representation of the form he is using incorrectly before expecting him to master the rules for use of a new form. In other words, the child must first learn that he cannot use Present Indicative in the example above before we can expect that he know to use Present Subjunctive. This change in the scoring procedure would not affect correct use, but it would affect attempted use. Once this change is implemented, the profile for LI may look very different.

After the preceding changes have been made to scoring, it will then be necessary to create a new way to summarize the findings. Mean weighted score is useful for comparison between LI and TD performance. However, mean weighted score has limitations when attempting to establish a profile of impairment for LI children. For example, Ser was one of the lowest-scoring forms for the children with LI, but upon further examination of the data, this form was highly accurate with low productivity. To better understand a profile of impairment, it would be useful to better distinguish forms that are low-scoring due to low productivity versus those that have low accuracy. From a treatment standpoint, it might be better to target a form with high productivity and low accuracy.

CONCLUSIONS

One of the goals of this project was to establish a profile of impairment for bilingual English-Spanish LI children. Based on the results, the secondary goal was to determine which grammatical forms should be included on a LSA scoring procedure for bilingual English-Spanish children with LI. The ultimate goal of this scoring procedure would be for clinical use: a way to choose treatment goals and monitor progress on those goals naturalistically. This project established a preliminary profile of impairment. This profile

will continue to be revised as this project is refined by micro-level changes (e.g., removing Ser and Estar, better defining scoring procedures for Reflexive Personal Pronouns) and macro-level changes (e.g., modifying error analysis).

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